

TECHNICAL REVIEW DOCUMENT
For
RENEWAL of OPERATING PERMIT 95OPLA070

Trinidad Municipal Power Plant
Las Animas County
Source ID 071/0005

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March 2005

I. Purpose:

This document will establish the basis for decisions made regarding the applicable requirements, emission factors, monitoring plan and compliance status of emission units covered by the renewed operating permit proposed for this site. The original Operating Permit was issued November 1, 1999, and expired on November 1, 2004. This document is designed for reference during the review of the proposed permit by the EPA, the public, and other interested parties. The conclusions made in this report are based on information provided in the renewal application submitted October 10, 2003, previous inspection reports and various e-mail correspondence, as well as telephone conversations with the applicant. Please note that copies of the Technical Review Document for the original permit and any Technical Review Documents associated with subsequent modifications of the original Operating Permit may be found in the Division files as well as on the Division website at <http://www.cdphe.state.co.us/ap/Titlev.html>.

Any revisions made to the underlying construction permits associated with this facility made in conjunction with the processing of this operating permit application have been reviewed in accordance with the requirements of Regulation No. 3, Part B, Construction Permits, and have been found to meet all applicable substantive and procedural requirements. This operating permit incorporates and shall be considered to be a combined construction/operating permit for any such revision, and the permittee shall be allowed to operate under the revised conditions upon issuance of this operating permit without applying for a revision to this permit or for an additional or revised construction permit.

II. Description of Source

This facility generates electricity for transmission and/or distribution and is classified under the Standard Industrial Classification of 4911. The facility consists of two boiler/turbine units, two dual-fuel internal combustion engine/generator units, and three 1880 kW generators powered by diesel fired internal combustion engines. Historically the coal-fired boiler/turbine unit operated approximately 4500 hours per year and typically shut down in the

summer months. The two dual fuel generators have operated primarily for emergency/standby purposes, typically less than 20 hours per year. The dual fuel generators have a name plate rating of 1875 kW, but are operated at 1700 kW because of their age.

The entire facility is currently operated as a standby/peaking plant consisting of one (1) coal-fired boiler/turbine unit, one (1) natural gas-fired boiler/turbine unit, two (2) dual fuel internal combustion engine/generator units, and three (3) 1880 kW diesel fuel internal combustion engine/generator units. Each boiler provides steam to its own 3750 kVA turbine/generator. The dual fuel engines use either diesel fuel alone or a combination of diesel fuel and natural gas.

The natural gas-fired boiler/turbine unit has been on “inactive” status for an extended period of time. With the addition of the three (3) diesel fired generator units, Trinidad has also placed the coal-fired boiler/turbine unit in “inactive” status. However, the utility retains the capability to operate whichever combination of units provides the optimum power production and maintains compliance with the conditions of this operating permit.

The facility is located at 1925 East Main in the city of Trinidad, Colorado. The area in which the plant operates is designated as attainment for all criteria pollutants.

The state of New Mexico is an affected state within 50 miles of the facility. There are no Federal Class I designated areas within 100 kilometers of the plant.

MACT Applicability

DDDDD – Industrial, Commercial, and Institutional Boilers and Process Heaters
(See ZZZZ discussion below)

ZZZZ – Stationary Reciprocating Internal Combustion Engines

An analysis was conducted to determine HAP emissions from the equipment at this facility. Total HAP emissions based on permitted production were calculated to be 5.2 TPY. Potential HAP emissions based on 8760 hours per year of operation on all equipment was 7.7 TPY. Facility-wide HAP limits are not needed since this facility is considered a True Minor source of HAPs. This is not a major source of HAPS and the RICE MACT does not apply to the Trinidad Municipal Power Plant. Trinidad has used an HCl emission factor which differs from AP-42. This emission factor is based on the coal composition and the Division finds it acceptable. No testing to prove the emission factor is necessary. However, the source must measure the chloride content of the coal as specified in the coal sampling plan.

Compliance Assurance Monitoring (CAM) Applicability

The coal-fired boiler (Unit #1) is equipped with multiple cyclones for control of particulate matter. The potential to emit of the boiler, without controls, exceeds major source levels and the boiler is subject to an annual limit on PM. A CAM plan is required for PM, but was not submitted with the Title V Operating Permit renewal application.

Emissions

The summary of emissions that was presented in the Technical Review Document (TRD) for the original permit issuance is still valid. Emissions from this facility have not changed.

III. Discussion of Modifications Made

Source Requested Modifications

The source has requested that the Division remove the requirement to annually inspect the insignificant activities and update the list of insignificant activities. The Division has removed this requirement since it is unnecessary. Note, however that the source must certify annually that they are complying with the insignificant activity requirements of Regulation No. 3, Part C.

CAM Plan Review

The source did not submit a CAM plan for the coal-fired boiler. CAM is required since the permit contains a PM limit and pre-control emissions of PM exceeds 100 TPY. The Division included a CAM plan in the permit and allowed the source to review and comment on it. The source also submitted additional information so that the Division could draft the CAM plan with all of the fields complete.

A review of the Boiler MACT (Subpart DDDDD) and other EPA CAM guidance was conducted to determine the best indicators for the CAM plan. The MACT DDDDD was consulted since the MACT conditions are considered presumptive CAM. The MACT requires existing boilers with cyclones to monitor opacity using a continuous opacity monitoring system (COMS) and maintain opacity to less than or equal to 20 percent (6-minute average).

The Division feels that opacity is a good indicator of particulate level in the exhaust gas. A high opacity would indicate that the control equipment is not working properly. The Division will not require installation of a COMS, but will require a weekly opacity reading using EPA Method 9. An opacity reading of less than or equal to 20 percent would indicate that the control device is working properly and meeting the particulate emissions limits. Trinidad will not be

required to conduct a Method 9 opacity reading if the boiler has not been operated under load during the week, or if a valid Method 9 observation could not be performed when the boiler did operate under load (such as the boiler not operating during daylight hours). The permittee should specifically note these situations for Division review. The permittee is not required to operate the boiler for the sole purpose of obtaining a weekly opacity observation.

The Division also feels that a reading of the pressure drop across the control device is an appropriate indicator to monitor on a daily basis. The multiclone is designed to operate within a specific pressure drop range for optimum collection efficiency. A low pressure drop could indicate low flue gas volumes or a leak which would result in a reduction in control efficiency. A high pressure drop will generally indicate a higher inlet velocity, which results in a higher control efficiency in the multiclone. However, if inlet velocity is too high, turbulence could result in a reduction of the control efficiency. The Division will require the source to maintain a pressure drop equal to or greater than the lowest pressure drop measured during the performance test. However, the pressure drop should not exceed the highest pressure drop measured during the performance test by more than one inch water column. The extra one inch water column was decided upon because it was necessary to present the source with an acceptable pressure drop range (especially since the manufacturer's recommended pressure drop will be used as the minimum prior to testing as noted below), and typically a higher pressure drop will result in better control. This approach could be revised during the next renewal if performance testing has been conducted at that point. The performance test is not required until the source operates the coal-fired boiler for more than 60 days or 1440 hours in 12 months. The source should use the manufacturers recommended pressure drop as a minimum until the performance test is conducted. The permittee has informed the Division that the manufacturer's recommended pressure drop is 3.1 inches water column.

The source may conduct additional performance tests to verify the effectiveness of a broader pressure drop range as approved by the Division. To be a valid test, the stack testing protocol must be approved in advance, and all Division testing guidelines must be followed.

Other Modification requests

The source requested a few modifications after the review of the draft permit. These are explained below:

The source requested removal of the coal sulfur and coal ash content limit from Condition 1.4. The Division has removed these limits. They are not necessary since the permit already contains limits on PM and SO₂ in the form of annual limits and lb/MMbtu limits. Compliance with these permit limits will be shown via a stack test if the boiler begins operations again.

The source requested modification of Condition 1.3.1 to allow the use of both bituminous and sub-bituminous coal. The Division reviewed AP-42 and determined that the emission factors are identical while using bituminous and sub-bituminous coal with this boiler. The permit has been modified to allow the use of both coal types since there will be no impact on emissions.

As requested by the source, Condition 4.6 was modified to allow 60 calendar days to conduct an EPA Reference Test (if required). The previous requirement of 45 days would only allow the source 15 days to request/review/select bids from testing firms.

Originally, the Regulation No. 1, Section VI.A.3.b.(i) SO₂ requirement was added to the Enterprise dual fuel engines as Condition 3.5. However, Trinidad commented that this regulation should not apply since the sum of the sulfur dioxide emission rates for all sources is less than three tons per day. Regulation No. 1 considers these sources to be exempt from the process based SO₂ limit.

Various wording changes were made to Appendix G: Coal Sampling Plan.

Other Modifications

In addition to the modifications requested by the source, the Division has included changes to make the permit more consistent with recently issued permits, include comments made by EPA on other Operating Permits, as well as correct errors or omissions identified during inspections and/or discrepancies identified during review of this renewal.

These changes are as follows:

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It should be noted that the monitoring and compliance periods and report and certification due dates are shown as examples. The appropriate monitoring and compliance periods and report and certification due dates will be filled in after permit issuance and will be based on permit issuance date. Note that the source may request to keep the same monitoring and compliance periods and report and certification due dates as were provided in the original permit. However, it should be noted that with this option, depending on the permit issuance date, the first monitoring period and compliance period may be short (i.e. less than 6 months and less than 1 year). The source has requested semi annual monitoring periods of January – June & July – December, with an annual compliance period of January – December.

- Added language specifying that the semi-annual reports and compliance certifications are due in the Division's office and that postmarks cannot be used for purposes of determining the timely receipt of such reports/certifications.

Section I – General Activities and Summary

- Conditions 13 and 17 in Condition 1.4 were renumbered to 14 and 18 and Condition 21 in Condition 1.5 was renumbered to 22. The renumbering changes were necessary due to the addition of the Common Provisions requirements in the General Conditions of the permit.
- In Condition 1.4, General Condition 3.g (new general condition for general provisions) was added as State-only requirements. The reference to Condition 1.6.3 was removed.
- Minor language changes were made to Condition 3.1 to more appropriately reflect the status of the source with respect to PSD and revisions to Regulation No. 3.
- Based on comments made by EPA on another operating permit, the phrase "Based on the information provided by the applicant" was added to the beginning of Condition 4.1 (112(r)).
- Added a "new" Section 5 for compliance assurance monitoring (CAM).
- The Title V Acid Rain program conditions have been moved from Section I to Section II, Condition 4.9.

Section II – Specific Permit Terms

Section II.1 – S001: Coal Fired Boiler

- The conditions have been re-arranged.
- Conditions 1.1 & 1.2 (emission limits & calculation) and 1.3 (fuel limits) were revised to reflect current language. Language was added to Condition 1.2 to require the use of any higher emission factors determined during a Division-approved performance test.
- Added a requirement to determine the chloride content of the coal in Condition 1.4. These measurements are necessary since Trinidad is using coal composition to determine HCl emissions (rather than AP-42 factors).
- Condition 1.5.2 – "permittee's operating experience" was replaced with "good engineering practices".

- Condition 1.6.1 – “complete calendar week of operation” was replaced with “calendar week in which the boiler is in operation”.
- Revised the language in Conditions 1.6 and 1.7 to better reflect the opacity requirements of Regulation No. 1. Removed the state-only opacity requirements formerly found under Condition 1.6.3. These requirements have been removed from Regulation No. 1 and are no longer valid. The “consecutive observation” requirement was replaced with a statement that the exceedance will exist until an observation is conducted which shows compliance with the opacity limit.
- The performance testing language has been moved from Condition 12 (in the old permit) to Condition 1.9. The condition was also revised to include a requirement to monitor the pressure drop across the control device during the test. Pressure drop readings are required for the CAM plan.
- Condition 1.10 – Added the CAM requirement (see CAM Plan Review on page 3 of this TRD).

Section II.2 – S002: Natural gas fired boiler

- The conditions have been re-arranged.
- The language in Condition 2.1 (annual emission calculation) has been revised to be more understandable.
- Revised the language in Conditions 2.3 and 2.4 to better reflect the opacity requirements of Regulation No. 1.
- The language of Condition 2.5 was revised to clearly state that the source needs to track fuel use on an annual basis.

Section II.3 – S003 & S004: dual fuel engines

- The conditions have been re-arranged.
- The language in Condition 3.1 (annual emission calculation) and 3.2 (fuel use) has been revised to be more understandable.
- Revised the language in Conditions 3.3 and 3.4 to better reflect the opacity requirements of Regulation No. 1.

Section II.4 – S008, S009 & S010: diesel fuel engines

- The conditions have been re-arranged.
- Conditions 4.1 & 4.2 (emission limits & calculation) and 4.3 (fuel limits) were revised to reflect current language. Language was added to

Condition 4.1 to require the use of any higher emission factors determined during a Division-approved performance test.

- Revised the language in Conditions 4.4 and 4.5 to better reflect the opacity requirements of Regulation No. 1.
- Added Condition 4.6 to require annual portable monitoring of the engine emissions. The portable monitoring will be used to show compliance with the NOx and CO emission factors. The Division typically requires quarterly portable monitoring of engines. However, these engines are rarely used and annual testing will be acceptable. The stack testing conducted on these engines showed compliance with the emission limits and factors. However, the NOx emission factor for unit #5 was only slightly below the requested emission factor. The permit limit of 38.5 TPY is very close to the PSD significance level. The Division has considered all of this information and is comfortable with requiring testing on an annual basis. The testing will not be required if the engines operate less than 100 hr/yr on an annual basis.
- Added a requirement (Condition 4.7) to track the hours of operation on each engine.
- Added the applicable Regulation No. 1 SO2 emission limit as Condition 4.8.
- The Acid Rain Program's New Unit Exemption was moved here, from Section I, as Condition 4.9.

Section II.5 – Coal Handling

- The language in Conditions 5.1 & 5.2 was revised.
- Condition 5.3 – Language was revised to be consistent with recently issued permits. An opacity reading is now required after visible emissions are observed for 30 minutes (changed from 48 hours).

Section II.6 – Ash Silo Vent

- The language in Conditions 6.1 & 6.2 was revised.
- “good engineering practices” was added to Condition 6.3.
- Revised the language in Conditions 6.4 and 6.5 to better reflect the opacity requirements of Regulation No. 1.
- Condition 6.4 - Language was revised to be consistent with recently issued permits. An opacity reading is now required after visible emissions are observed for 30 minutes (changed from 48 hours).

Section II.7 – Ash Silo Loadout

- The language in Condition 7.1 (annual emission calculation) and 7.2 (ash production) has been revised to be more understandable.
- “good engineering practices” was added to Condition 7.3.3.1.
- Condition 7.4 - Language was revised to be consistent with recently issued permits. An opacity reading is now required after visible emissions are observed for 30 minutes (changed from 48 hours).

Section II.9 – Coal consumption and sampling plan

- The Division added a requirement to test the coal for chloride.

Former Section II.9 – Emission Calculation Changes

- The Division removed this condition. It is not necessary to have this as a permit condition.

Former Section II.10 – Reporting

- The Division removed this condition. It is not necessary to have this as a permit condition.

Former Section II.12 – Compliance testing

- The coal fired boiler test requirements were moved to Section II.1. The diesel engine testing requirements were removed since the testing has been conducted. Further testing is not necessary unless required by the portable monitoring requirements of Section II.4.6.

Section III – Permit Shield

- The citation in the permit shield was corrected.

Section IV – General Conditions

- Added language from the Common Provisions (new condition 3). With this change the reference to “21.d” in Condition 21 (prompt deviation reporting) will be changed to “22.d”, since the general conditions are renumbered with the addition of the Common Provisions.
- The citation in General Condition 17 (open burning) was revised. The open burning requirements are no longer in Reg 1 but are in new Reg 9. In addition, changed the reference in the text from “Reg 1” to “Reg 9”.

Appendices

- Two Regulation No. 3 references were changed in Appendix B (page 9) & C (page 4).
- Added a requirement to determine the chloride content of the coal in Appendix G.
- Added the CAM Plan to Appendix I.